

L2-Graphing Scatter Plots and Lines of Best Fit

A scatter plot is a graph that shows the Relationship between two variables.

The points in a scatter plot often show a pattern, or Trend.
From the pattern or trend you can describe the Relationship or correlation.

Example:

Julie gathered information about her age and height from the markings on the wall in her house.

Age (years)	1	2	3	4	5	6	7	8
Height (cm)	70	82	93	98	106	118	127	135

Example:

Julie gathered information about her age and height from the markings on the wall in her house.

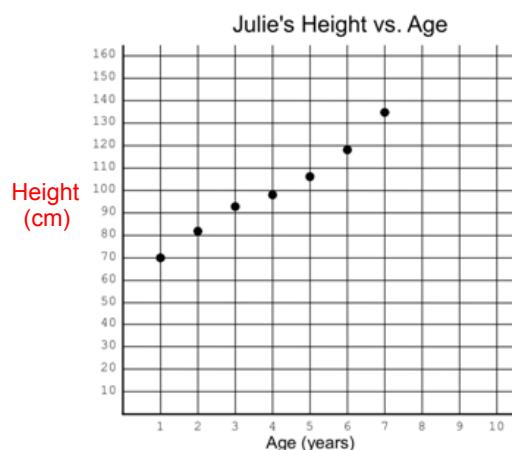
Age (years)	1	2	3	4	5	6	7	8
Height (cm)	70	82	93	98	106	118	127	135

- Label the vertical axis.
- Describe the trend in the data.

➡ Positive correlation
or
Upwards Trend

- Describe the relationship.

➡ As age increases
height increases



Variables

The independent variable is located on the x / horizontal axis.
This variable does not depend on the other variable.

The dependent variable is located on the y / vertical axis.
This variable depends on the other variable.

Independent variable: age

Dependent variable: height

Note:

The independent variable comes first in the table of values.

Ex. 1.

A ball is dropped from different heights.

The drop height and rebound height are recorded.

a) What trend do you see in the data?

Does the rebound height of the ball appear to depend on the height from which the ball is dropped?

b) Draw a scatter plot.

Does the scatter plot support your answers to part a? Explain.

c) Draw a line of best fit.

d) Predict the rebound height when the ball is dropped from a height of 2.5 m and from a height of 8 m.
How did you do this?

e) Write one other question about these data.
Answer your question.

<div>X</div> <div>Y</div>	
Drop height (m)	Rebound height (m)
1.0	0.7
2.0	1.3
3.0	2.3
4.0	3.0
5.0	3.8

Drop height (m)	Rebound height (m)
1.0	0.7 ✓
2.0	1.3 ✓
3.0	2.3 ✓
4.0	3.0
5.0	3.8

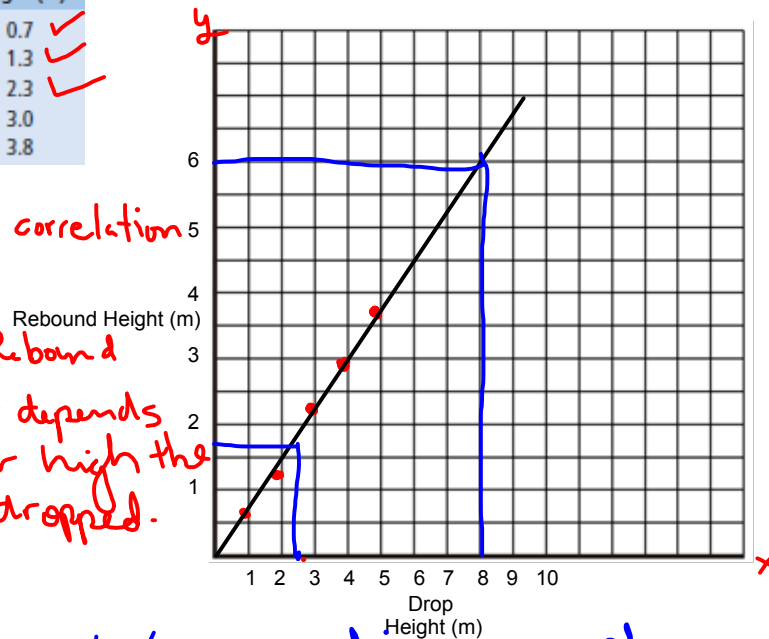
a) positive correlation
yes

b) yes, Rebound height depends on how high the ball is dropped.

c) draw

d) 1.75m & 6m reading the graph

e) What would be the rebound height if you drop it from 10m \Rightarrow ANS 6.7m.



Plot some data!

#1

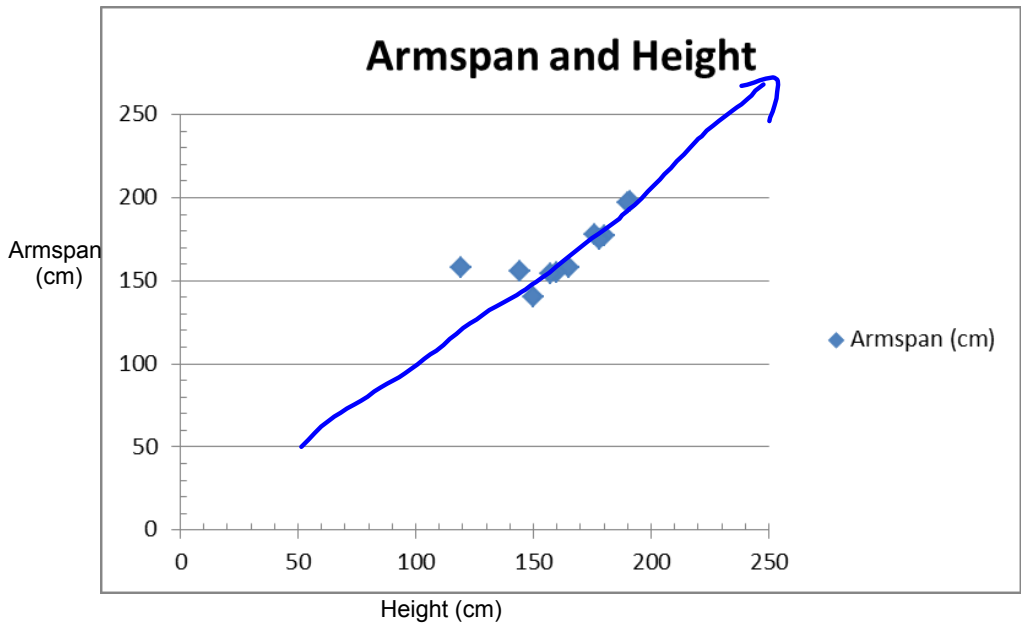
Name	Height (cm)	Armspan (cm)
Ghobril	191	198
Ryan	190	197
Ayat	165	158
Morgan	176	178
Abdul	180	177
Huda	150	140
Chantilly	144	156
Shadia	160	155
Yara	178	175
Kalid	119	158
Noor	157	154.5

#2

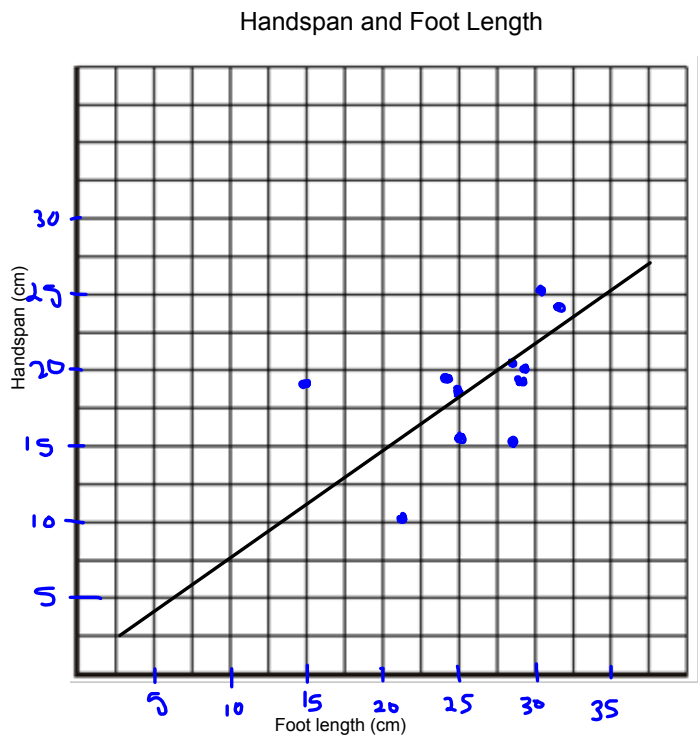
Name	Foot length (cm)	Handspan (cm)
Ghobril	31.5	25.5
Ryan	32	24
Ayat	25	16
Morgan	29	20
Abdul	28	21
Huda	15	18
Chantilly	22	10
Shadia	24	19
Yara	29	19
Kalid	25	18.5
Noor	27	21.5

#3

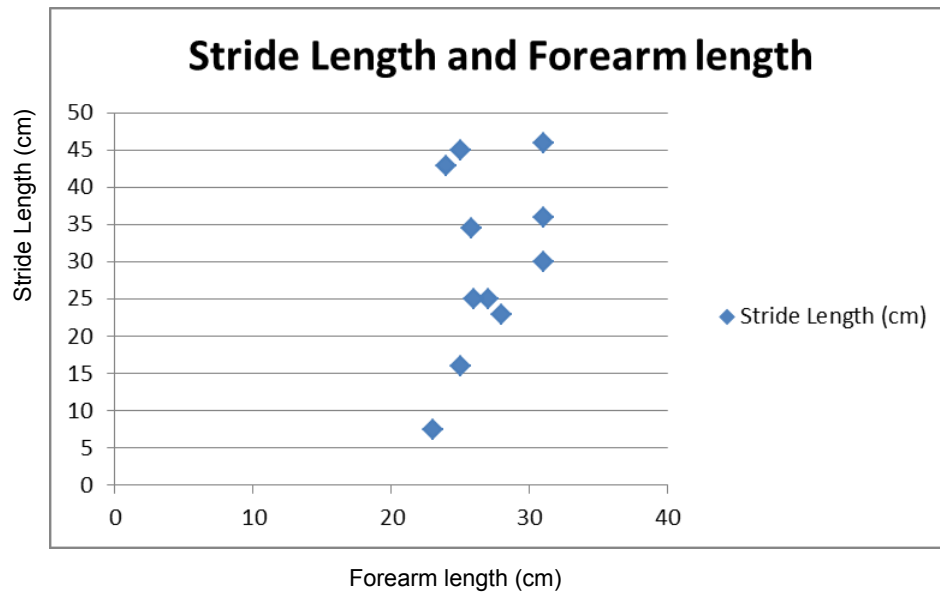
Name	Forearm (cm)	Stride Length (cm)
Ghobril	31	46
Ryan	31	30
Ayat	25	45
Morgan	28	23
Abdul	31	36
Huda	27	25
Chantilly	25.8	34.5
Shadia	24	43
Yara	26	25
Kalid	25	16
Noor	23	7.4



a) Type of correlation? *Positive*



*Positive correlation
upward trend*



a) Type of correlation?

No trend